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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,298	10/28/2003	Toshiyuki Baba	42479-8100	4183

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EXAMINER	
WATTS, ALLISON LEIGH	
ART UNIT	PAPER NUMBER
1753	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/695,298	BABA, TOSHIYUKI	
	Examiner	Art Unit	
	Allison L. Watts	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 5-7, 9-14, 16-18, and 20-22 are rejected under 35 U.S.C. 103(a) as being obvious over admitted prior art in combination with Bukamier.

As to claims 5-7, Admission disclose an ion measuring composite electrode (20) comprising: an outer pipe (2) having a closed distal end (2a) with a diameter of a portion adjacent the distal end narrower than a proximal end (2b) thereof; an ion responsive section (4) and a liquid connecting section (9) is provided on the outer pipe; and an inner pipe (3) is provided within the outer pipe and is spaced from the outer pipe to form an annular space (6) for providing a space for a reference liquid (8); the inner

pipe is connected to the outer pipe to form the annular space (Figure 4; Specification paragraphs 0002-0006 and 0023).

As to claims 9-11, Admission discloses an improved measuring instrument for measuring a liquid specimen, the improvement comprising: a composite electrode including an inner pipe spaced from a surrounding hollow outer pipe, the inner pipe is welded to the outer pipe to provide an annular space between the inner and outer pipe for receiving a reference electrode liquid (Figure 4; Specification paragraphs 0002-0006 and 0023).

As to claims 12-14, 16-18, and 20-21, Admission discloses an ion measuring composite electrode comprising: an inner hollow glass pipe; an outer hollow glass pipe having an inner surface cross sectional dimension greater than an outer surface cross sectional dimension of the inner hollow glass pipe, wherein the inner hollow glass pipe is positioned within the outer hollow glass pipe; the inner hollow glass pipe is spaced from the outer hollow glass pipe to form a reference electrode internal liquid space; a liquid connecting section is provided adjacent one end of the outer hollow glass pipe to communicate with the sealed reference electrode internal space between the inner hollow glass pipe and the outer hollow glass pipe; a reference electrode internal liquid is in the sealed reference electrode internal spacer; a reference electrode communicates with the sealed reference electrode internal spacer; a measuring electrode internal liquid is within the hollow inner glass pipe; an internal electrode communicates with the inner hollow glass pipe; and an ion responsive section is provided on the outer hollow glass pipe (Figure 4; Specification paragraphs 0002-0006 and 0023).

As to claim 22, Admission discloses an ion measuring composite electrode comprising: an inner hollow glass pipe; an outer hollow glass pipe having an inner surface cross sectional dimension greater than an outer surface cross sectional dimension of the inner hollow glass pipe, wherein the inner hollow glass pipe is positioned within the outer hollow glass pipe; the inner hollow glass pipe is spaced from the outer hollow glass pipe to form a reference electrode internal liquid space; a liquid connecting section is provided adjacent one end of the outer hollow glass pipe to communicate with the sealed reference electrode internal space between the inner hollow glass pipe and the outer hollow glass pipe; a reference electrode internal liquid is in the sealed reference electrode internal spacer; a reference electrode communicates with the sealed reference electrode internal spacer; a measuring electrode internal liquid is within the hollow inner glass pipe; an internal electrode communicates with the inner hollow glass pipe; and an ion responsive section is provided on the outer hollow glass pipe, wherein the outer hollow glass pipe has an enlarged inner diameter at one end and the inner hollow glass pipe has an enlarged outer diameter positioned with the enlarged inner diameter when compared to the inner and outer diameter adjacent the ion responsive section (Figure 4; Specification paragraphs 0002-0006 and 0023).

Admission does disclose the inner pipe spaced from the outer pipe, but does not disclose a water absorbing flexible material is positioned between the inner surface of the outer hollow glass pipe and the outer surface of the inner hollow glass pipe to space the inner hollow glass pipe from the outer hollow glass pipe, wherein the inner hollow

glass pipe outer diameter is sealed to the inner diameter of the outer hollow glass pipe to form a reference electrode internal liquid space.

Bukamier et al. disclose an ion sensitive electrode in which an inner pipe (20) is provided within the outer pipe (10) and is spaced from the outer pipe by an elongated member (24) with liquid absorption characteristics to form an annular space for providing a space for a reference liquid (Abstract; Figures 2-3; column 5, line 13 through column 6, line 66).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the porous member of Bukamier for the composite electrode of Admission because it would provide concentric spacing between the inner and outer pipes, as well as to enable the formation of a salt bridge. The exact shape or porous material used for the elongated member is not vital to its function.

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the composite electrode with a narrow distal end of Admission for the composite electrode of Bukamier because the narrow distal end would make it easier to take measurements in narrow spaces, while at the same time the wider proximal end would accommodate for assembling the larger internal components such as the measuring and reference electrodes and electrical wiring. The exact shape or porous material used for the elongated member is not vital to its function.

4. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being obvious over admitted prior art and Bukamier in view of either Christner et al. or Benton.

Admission does not disclose the elongated member is a string wound spirally around the inner pipe.

Christner et al. disclose an electrochemical sensor comprising a spiral shaped plug (12) made from a porous material and saturated with electrolyte that may function as a salt bridge (Abstract; Figure 1A; column 2, lines 51-56; column 3, line 67 through column 4, line 9).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to modify the elongated member of Bukamier et al. by using the spiral shaped member of Christner et al. because the spiral shaped member could be used as a salt bridge. Also, the exact shape or porous material used for the elongated member is not vital to its function. The method of making the composite electrode is not pertinent since the claim refers to an apparatus.

Benton discloses an electrochemical sensor comprising a helical shaped liquid junction made of a permeable material and positioned between the measuring electrode and reference electrode and used to protect and extend the life of the reference electrode (Figures 2-3; column 3, line 14 through column 4, line 37; column 5, line 66 through column 6, line 3).

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to modify the elongated member of Bukamier et al. by using the spiral shaped member of Benton because the spiral shaped member could be used to protect and extend the life of the reference electrode. Also, the exact shape or porous

material used for the elongated member is not vital to its function. The method of making the composite electrode is not pertinent since the claim refers to an apparatus.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being obvious over admitted prior art and Bukamier in view of West et al.

Admission does not disclose a first assembly cap attached to the outer hollow glass pipe and a second assembly cap mounted within the first assembly cap and attached to the inner hollow glass pipe.

West et al. disclose using an electrode cap to seal the reference and Ph compartments of the pH electrode (Figure 5; paragraphs 0053 and 0069).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the composite electrode of Admission by using an electrode cap as disclosed by West et al. in order to seal in the moisture.

6. Claims 9, 12, and 18-19 are rejected under 35 U.S.C. 103(a) as being obvious over admitted prior art in combination with West et al.

As to claim 9, Admission discloses an improved measuring instrument for measuring a liquid specimen, the improvement comprising: a composite electrode including an inner pipe spaced from a surrounding hollow outer pipe, the inner pipe is welded to the outer pipe to provide an annular space between the inner and outer pipe for receiving a reference electrode liquid (Figure 4; Specification paragraphs 0002-0006 and 0023).

As to claim 12, Admission discloses an ion measuring composite electrode comprising: an inner hollow glass pipe; an outer hollow glass pipe having an inner

surface cross sectional dimension greater than an outer surface cross sectional dimension of the inner hollow glass pipe, wherein the inner hollow glass pipe is positioned within the outer hollow glass pipe; spacing the inner hollow glass pipe from the outer hollow glass pipe to form a reference electrode internal liquid space; a liquid connecting section is provided adjacent one end of the outer hollow glass pipe to communicate with the sealed reference electrode internal space between the inner hollow glass pipe and the outer hollow glass pipe; a reference electrode internal liquid is in the sealed reference electrode internal spacer; a reference electrode communicates with the sealed reference electrode internal spacer; a measuring electrode internal liquid is within the hollow inner glass pipe; an internal electrode communicates with the inner hollow glass pipe; and an ion responsive section is provided on the outer hollow glass pipe (Figure 4; Specification paragraphs 0002-0006 and 0023).

Admission do disclose a space between the inner and outer glass pipes, but does not disclose a flexible material is positioned between the inner surface of the outer hollow glass pipe and the outer surface of the inner hollow glass pipe to space the inner hollow glass pipe from the outer hollow glass pipe, wherein the inner hollow glass pipe outer diameter is sealed to the inner diameter of the outer hollow glass pipe to form a reference electrode internal liquid space.

West et al. disclose and an inner pipe (3) is provided within the outer pipe (5) and is spaced from the outer pipe by an elongated member (6, 7) to form an annular space for providing a space for a reference liquid (Figure 1; paragraphs 0046-0047).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the porous member of West et al. for the composite electrode of Admission because it would provide concentric spacing between the inner and outer pipes, as well as to enable the formation of a salt bridge.

It would also have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the composite electrode with a narrow distal end of Admission for the composite electrode of West et al. because the narrow distal end would make it easier to take measurements in narrow spaces, while at the same time the wider proximal end would accommodate for assembling the larger internal components such as the measuring and reference electrodes and electrical wiring.

As to claim 18, Admission discloses the outer hollow glass pipe has an enlarged inner diameter at one end and the inner glass pipe has an enlarged outer diameter positioned within the enlarged inner diameter (Figure 4).

As to claim 19, Admission does not disclose a first assembly cap attached to the outer hollow glass pipe and a second assembly cap mounted within the first assembly cap and attached to the inner hollow glass pipe.

West et al. disclose using an electrode cap to seal the reference and Ph compartments of the pH electrode (Figure 5; paragraphs 0053 and 0069).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the composite electrode of Admission by using an electrode cap as disclosed by West et al. in order to seal in the moisture.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allison L. Watts whose telephone number is (571) 272-6640. The examiner can normally be reached on Monday through Friday, 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ALW
3/29/2007

RODNEY G. MCDONALD
PRIMARY EXAMINER